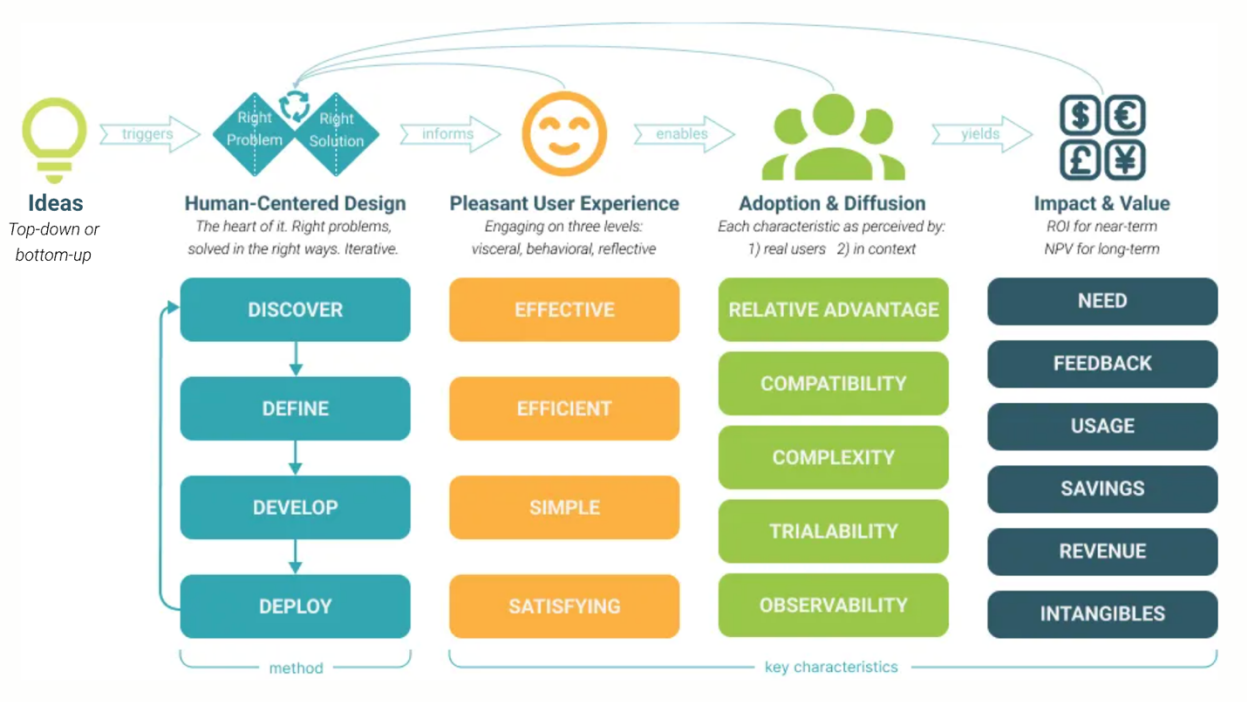
The AREA Innovation Impact Framework

Most every impactful innovation uses Human-Centered Design, HCD. HCD helps inform what users will perceive as a pleasant User Experience, UX.

Good UX enables but does not promise user adoption and then broad, organic diffusion. It is only through adoption and diffusion that an innovation yields impact & value.



The next sections follow along the top of the framework, from Idea to Impact, to explain each factor. After that we iterate through each step in the HCD method, from Discover to Deliver, to see when different key characteristics become relevant during the HCD process.

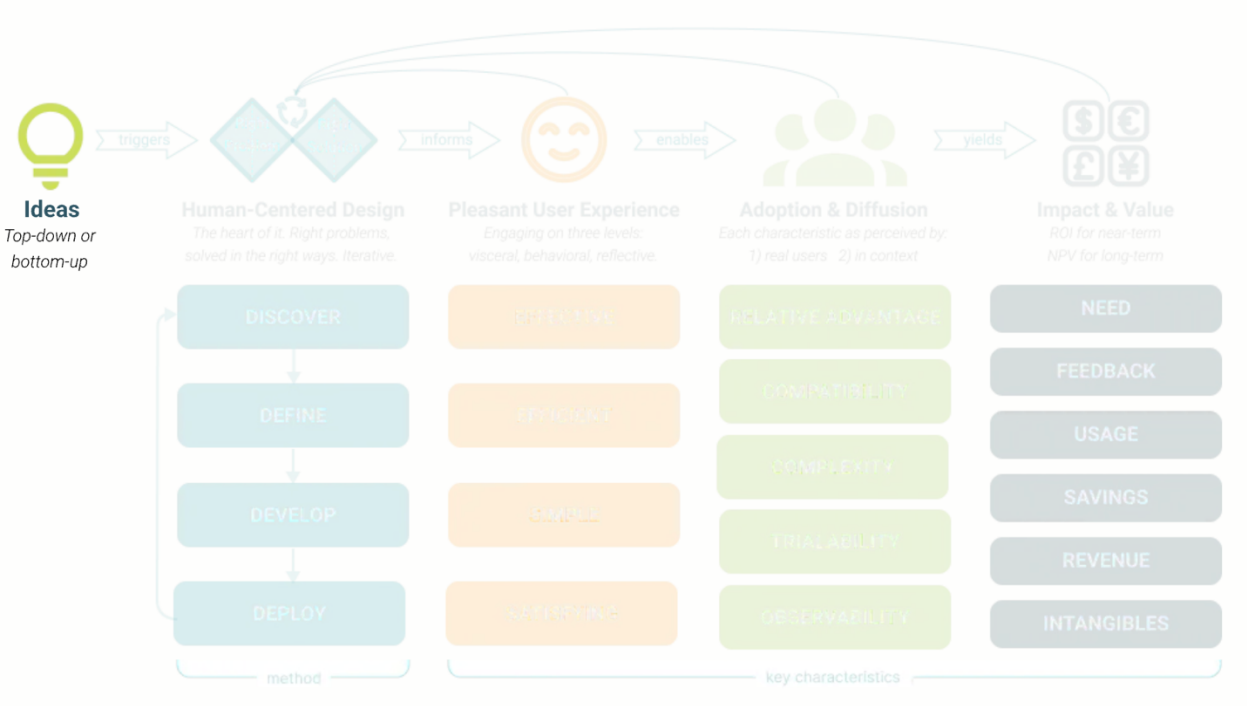
For further details on the different key characteristics, visit The AREA Innovation Impact Framework (ACTION: make the title a link) and click the item of interest. To hear how the framework can help you create AR innovations “people clamor for”, see the Augmented Enterprise Summit main stage case study, Fewer Faceplants: An Innovation Framework from Idea to Impact.

Innovation Impact Factors

Members of The AREA experience successful innovations across five main factors: The Idea, Human-Centered Design, Pleasant User Experience, Adoption & Diffusion, and Impact & Value. An introduction to each follows.

The Idea

Ideas can originate at the ground level and be driven up through an enterprise, or they can be driven top-down by a company's leaders.



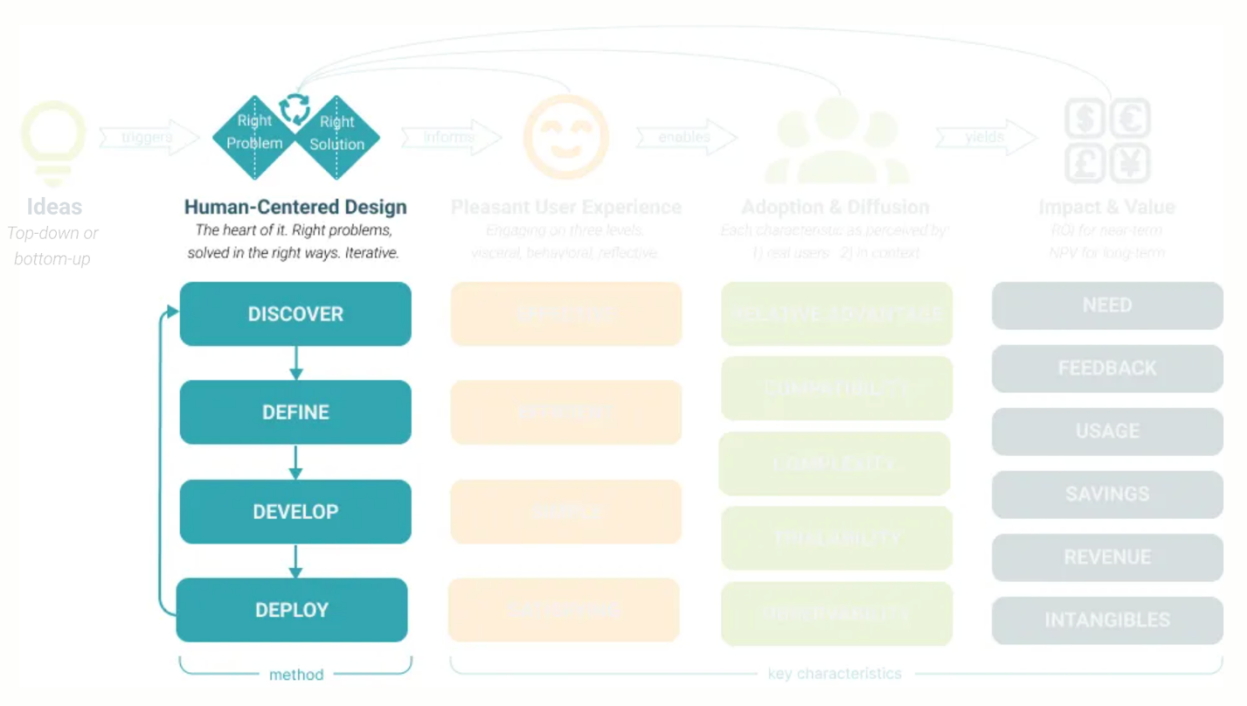
Top-down ideas have the benefit of having leader-backing, budget for resources, and the leader's influence. However, leadership changes can put top-down ideas at risk, making quick progress and proof essential.

Bottom-up ideas have the benefit of originating from real problems rather than leader perceptions of them. However, bottom-up ideas must be proven – often with little budget and as a "side gig" to an innovator's "real job" – to gain leader buy-in and authorization. To do this, tactics of stealth or shoestring innovation must be used, practices like proving concepts as intern projects or generating pull from real users through high fidelity interactive mockups. As stealth innovation costs companies little, innovations using these tactics often have more time for iterative human-centered design.

Human-Centered Design

Human-Centered Design, HCD, is the heart of most impactful innovation efforts, and the most important part of HCD is understanding the right problem. Why? As the design great Don Norman said, “Invariably the problem I am asked to solve is not the real, fundamental problem.”

Only by knowing the right problem can you design the right solution. Understanding the right problem is the first phase of HCD, and it happens in two steps: *Discover* & *Define*.



Using the British Design Consortium’s “double diamond” visualization, in *Discovery* you’re opening your perspective – the diamond’s left – observing and questioning everything. In the diamond’s right side, *Define*, you’re synthesizing and narrowing-in on the right problem.

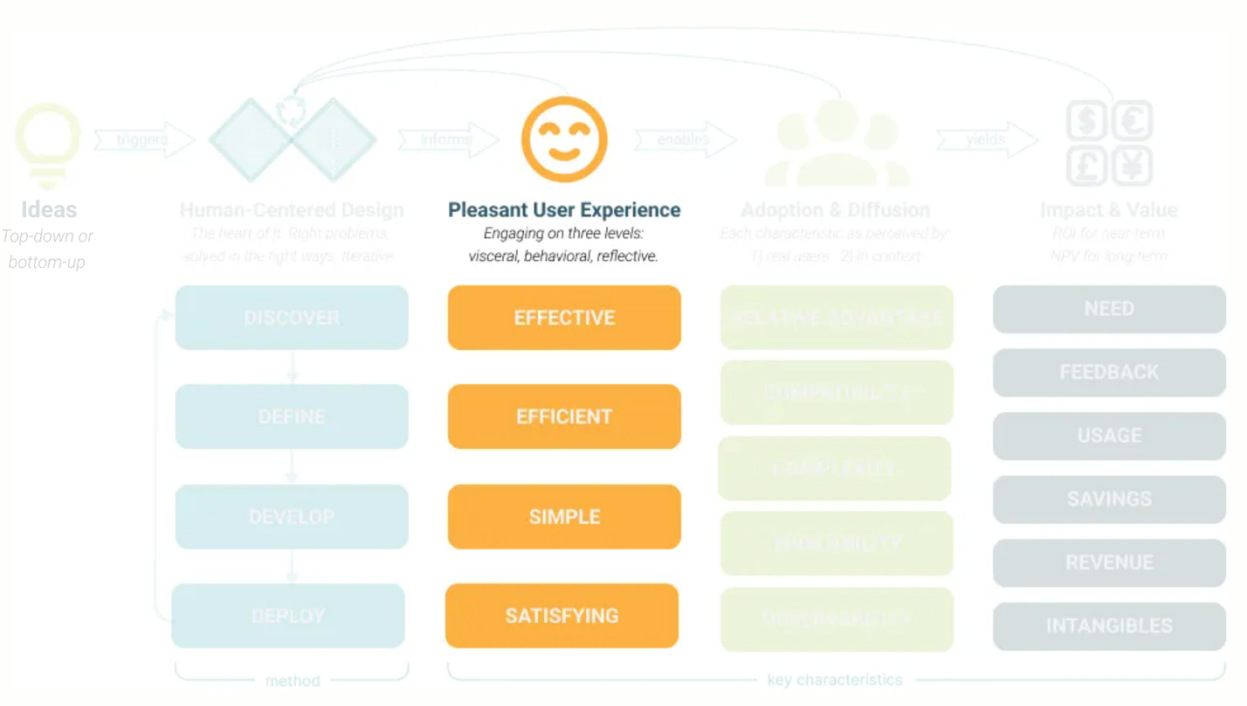
The second diamond, designing the right solution, again starts with an opening of view. *Develop* is toward considering the many ways the right problem might be solved. Considering UX and user perceptions, though, the right side of the second diamond, *Deploy*, is toward selecting or designing the right solution from among the options.

Important: *HCD is iterative*. This is why HCD often succeeds when assuming requirement-based approaches fail. There’s much that’s unknown – always – but HCD encourages iteration as unknowns become known.

Pleasant User Experiences

User experience, UX, is more than the user interface, UI. UX encompasses all aspects of a user's – yup – experience of a solution, from how they find it to their support experience and even their social experiences from using the app.

A pleasant UX happens in many ways, though the most common are the experiences of a solution that's effective (recall the most important part of HCD: Solve the right problem!), efficient, simple, and satisfying.



The user's experience of these plays across three engagement levels: visceral, behavioral, and reflective.

Visceral engagement is the first and most important to near-term adoption: It's the first impression, the kneejerk reaction to an innovation. Is it cluttered or inviting? Is it visual or wordy? First impressions are as important in design as they are in interviewing or dating.

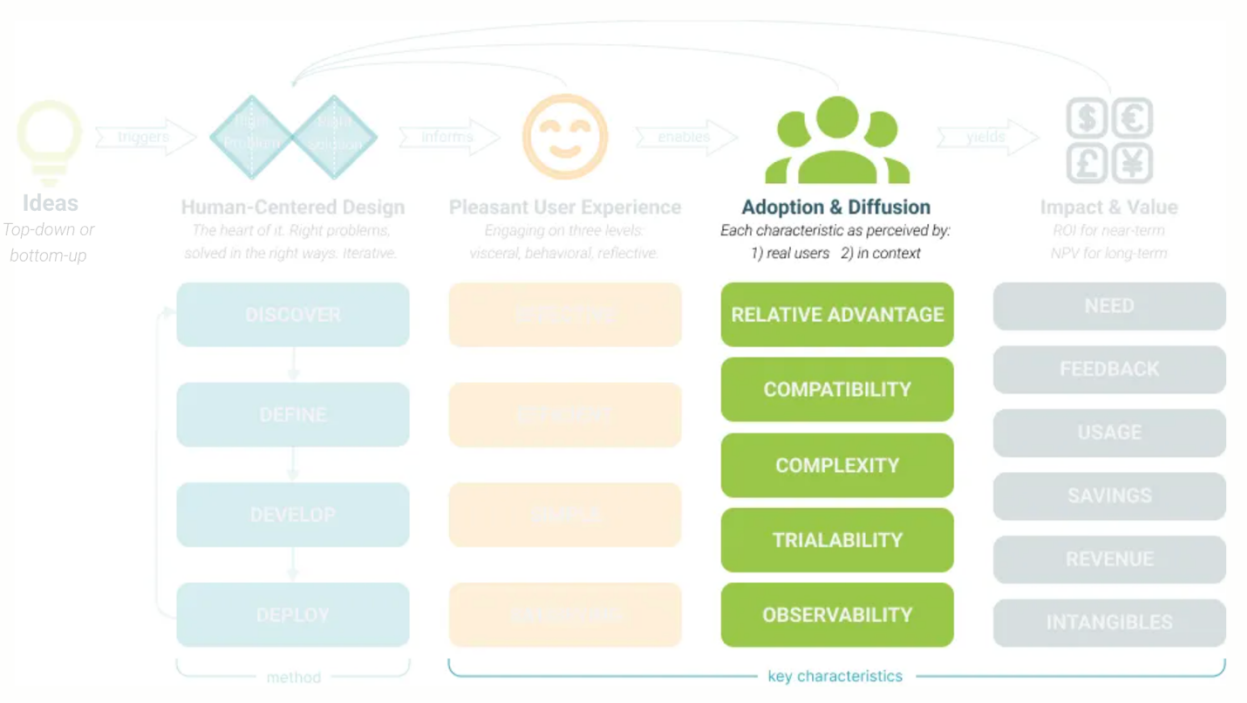
Behavioral is the user's experience of the innovation beyond that first impression, as they use it. Extending the dating metaphor, it's whether on subsequent dates the person is sometimes a jerk to the server, whether their car or home is a mess, or whether they can get angry too easily.

Reflective is the last and most important engagement, both for long-term adoption and the organic diffusion of an innovation. Reflective engagement is the extent to which, for instance, the user is so impressed with an innovation that they talk about it on a date. UX

that's so pleasant that the user discusses it with others is needed for the peer-to-peer, network-to-network, site-to-site, and nation-to-nation diffusion of innovations.

Adoption & Diffusion

As introduced in Everett Rogers's book *Diffusion of Innovations* and proven through thousands of case studies, there are five key characteristics driving an innovation's adoption and then diffusion: Relative Advantage, Compatibility, Complexity, Trialability, and Observability. Each is as perceived by 1) real users and 2) in the context of their real and perceived needs.



Relative Advantage: How does the user perceive the innovation compared to their overall experience, UX, of alternatives including doing nothing?

Compatibility: How compatible is the innovation with the user's past experiences, cultural norms, biases and preferences, and so forth?

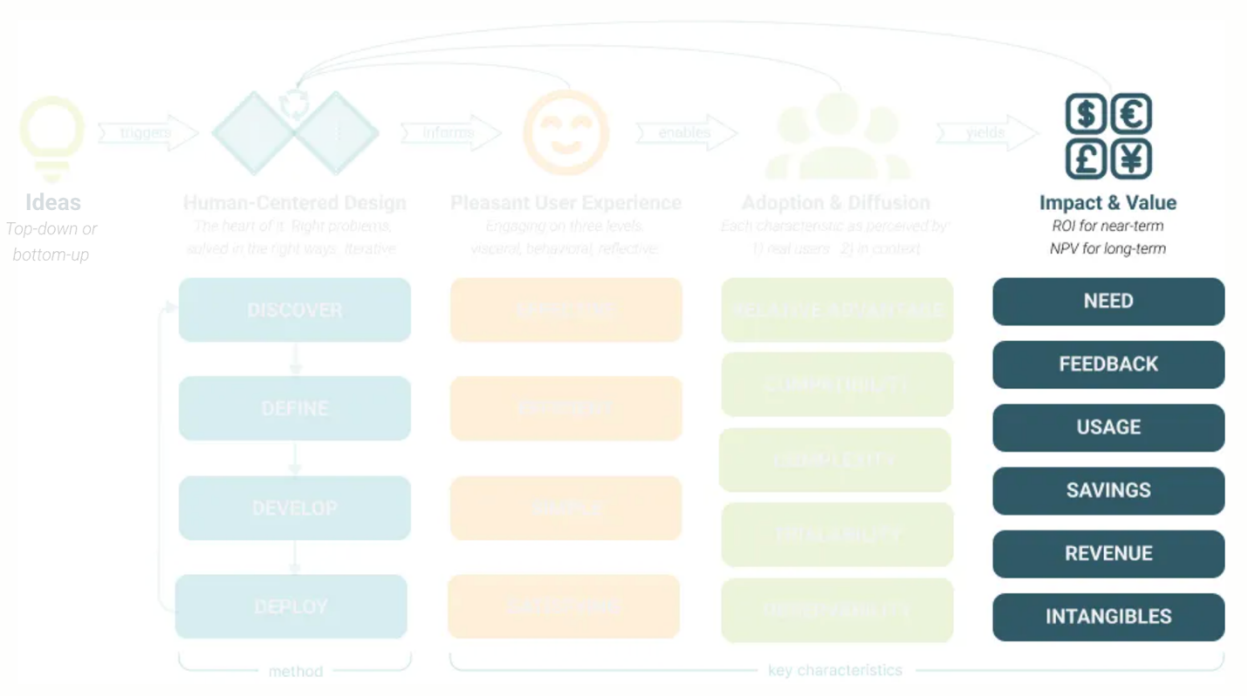
Complexity: How hard is it to use, give feedback on, get support for, etc.?

Trialability: How easy is it to give the innovation a try? Is specialized equipment needed? Does it need an expert to explain its use? How hard is licensing?

Observability: When using or walking past someone using the innovation, how easy is it to see its benefits to the user? It's benefits to the enterprise matter less than user benefits, because users are who adopt, while mandates seldom last.

Impact and Value

Too often the impact of innovations is only considered in terms of Return on Investment, ROI. This is short-sighted, as there are others of equal importance.



Need: Now that you've found the right problem to solve (Human-Centered Design), is this a niche problem in the enterprise or one that impacts many products or sites?

Feedback: Some of the earliest signals of benefit is user feedback. These leading indicators help you discover what to measure for quantified benefits, and they address cynics of the numbers that will come later.

Usage: Never launch an innovation without means to measure usage. Before ROI can be calculated, your first indicator of impact (or not) is usage growth (or decline). In either case, engage with users to understand why they're bragging on the innovation (or turning away).

Savings: Finally we reach ROI. ROI, though, is only for near-term benefit, usually a time horizon of 2 to 3 years. Because the value of a dollar changes with time, and because impactful innovations can have long staying power, use Net Present Value (NPV) to calculate benefits over longer time horizons.

Revenue: If the innovation is to be used as a revenue stream, that factors here. Less obvious forms of revenue-like value is increased contract capture or increased intellectual property portfolios, for instance when AR is used to capture and codify tribal knowledge.

Intangibles: While it's hard to put a price on increased goodwill in the marketplace, better brand value for an enterprise, and improved employee engagement and perception of their company, such intangibles are catalysts for enterprise success.

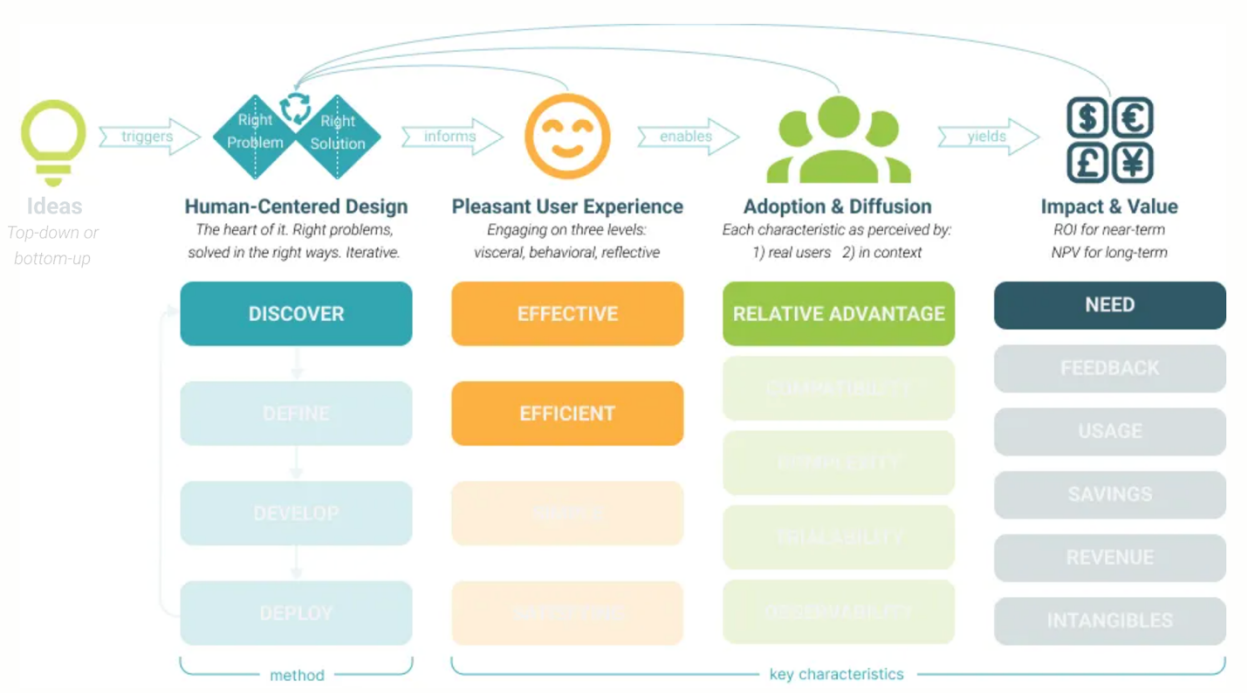
The Method: Human-Centered Design

As explained earlier, Human-Centered Design (HCD) has four steps in two phases. Steps in the first phase – *Discover* and *Define* – aim to find the right problem to solve. Steps in the second phase – *Develop* and *Deploy* – aim to deliver the right solution to the right people in the right way.

In each step of the HCD process, different key characteristics of the framework are relevant. Focusing on later key characteristics too early in the innovation process can slow or derail good innovation efforts.

HCD: Discover

The goal of the DISCOVER phase is to observe and understand real users as much as possible. The best understood problems make for the best designed solutions. It's through understanding user needs, environments, culture, and other realities that impactful solutions materialize.



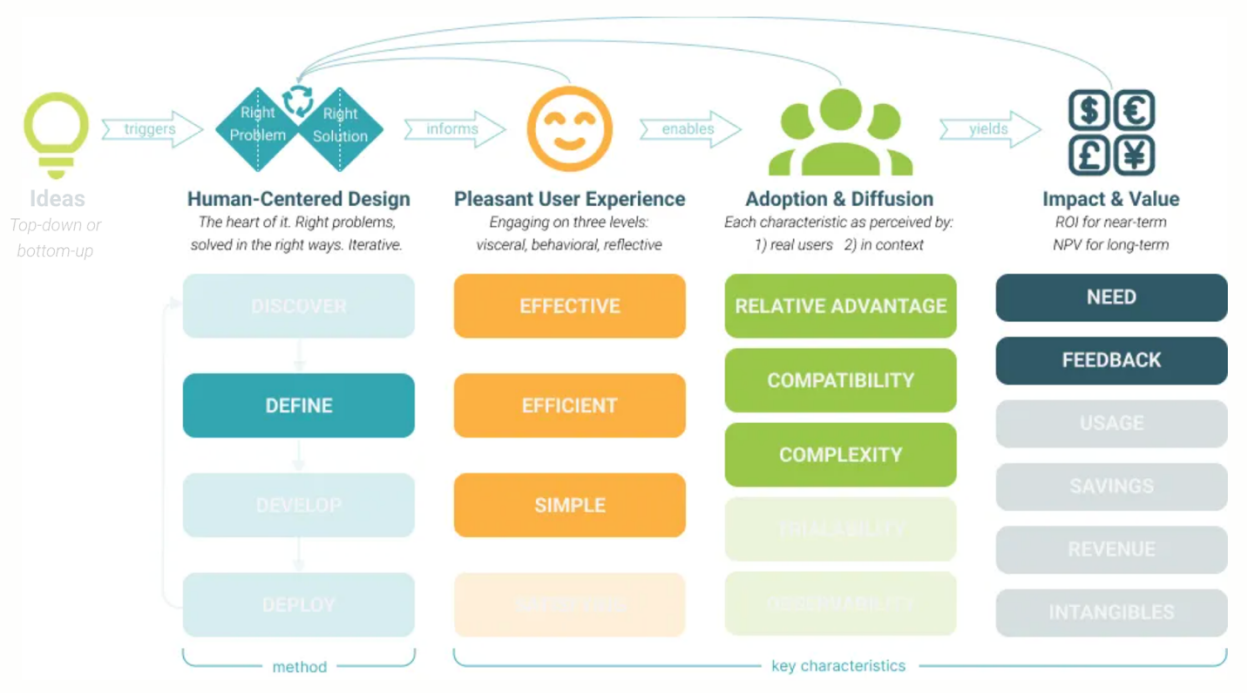
Pleasant UX isn't a focus during discovery, because the innovator's focus is on understanding problems, not ideating solutions. However, understanding problems means discovering what is and isn't working for users (EFFECTIVE), what is and isn't taking time (EFFICIENT), and why.

Adoption & Diffusion likewise isn't a focus in discovery, though the innovator is coming to understand the existing preferred methods and what an innovation must do to augment or even displace them (RELATIVE ADVANTAGE).

Impact & Value is focused on NEED during discovery. How widespread is this problem? When it happens, how costly is it? Prioritize wide-spread, high-cost problems. Wide-spread, low-cost problems also deserve priority, as modest help on a large scale is often more impactful than bigger though localized benefits.

HCD: Define

During DISCOVERY for an AR innovation you might have observed that when Operators assemble their product, simple steps like installing screws and subassemblies are fast and reliable. In the DEFINE phase you narrow your focus on what's truly a problem for people.



While installing crews and subassemblies were fast and reliable, you noticed that with complex cable harnesses, it takes longer, is more error-prone, and people use printed instructions because it's hard to hold the cable routings and anchor points in their memory.

So, the problem in this scenario isn't that people need AR for ALL work instructions, only the spatially complex ones.

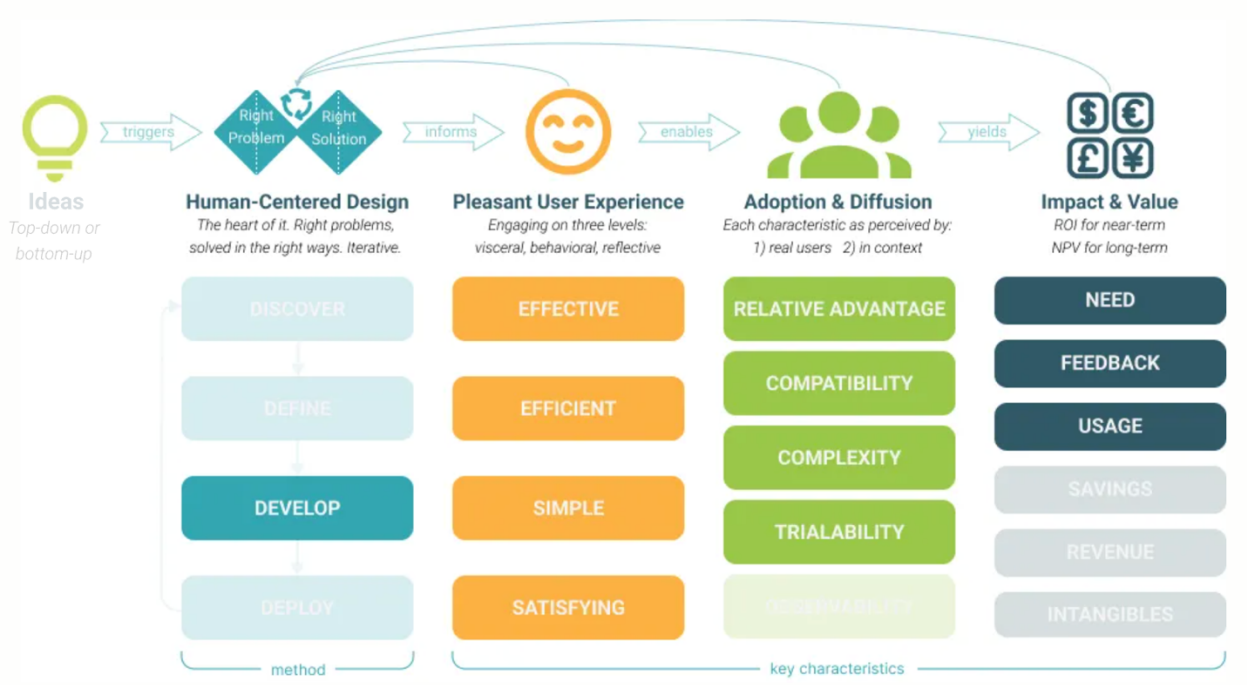
Pleasant UX in the define stage expands as you begin to understand user needs for what will qualify as SIMPLE for them. What they'll perceive as more EFFECTIVE and EFFICIENT will also become clearer.

Adoption & Diffusion will expand to include COMPATIBILITY and COMPLEXITY as you isolate the core problem(s) needing solved and how they relate to user needs. COMPATIBILITY is often overlooked in innovation, but you can click its block to learn more.

Impact & Value grows to include FEEDBACK, as users will begin to voice excitement in your isolating their greatest needs and even mocking up how it might be different. In fact, unsolicited enthusiastic feedback is a key indicator that you're on the right path. Polite acceptance is a glaring red flag.

HCD: Develop

The DEVELOP step in HCD is the fun one. It's the Siren call of innovation. It's where innovators too often start, skipping the first diamond of understanding the right problem, they pursue the wrong solution or a solution that works in the wrong way for users.



Extending the AR innovation scenario discussed in DEFINE, during DEVELOP you might partner with an AR company who can integrate with your enterprise systems, develop

augmented instructions quickly, and deploy on a variety of devices to trial with users. Your goal would be to "dabble" with many different approaches as fast and affordably as possible. If your user community wasn't very tech savvy, you might opt to pilot with a tablet-based AR solution and wait to introduce smart glasses until the pilot proves successful.

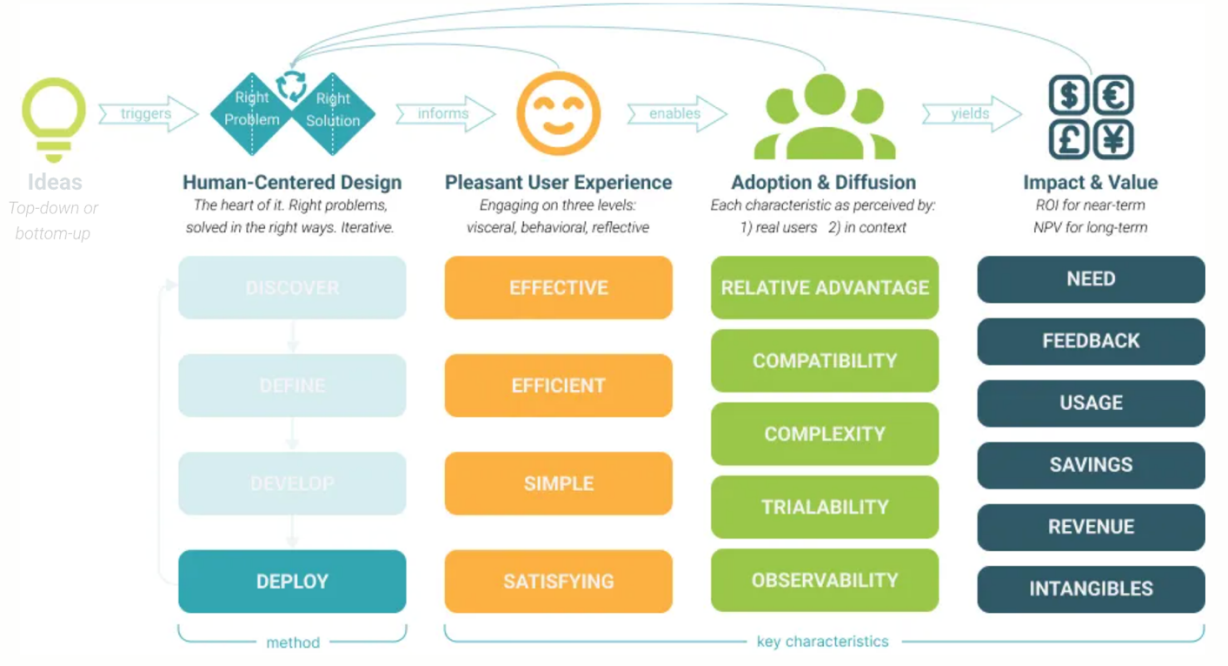
Pleasant UX comes into full view in the DEVELOP step. You're assessing people's perceptions of how EFFECTIVE, EFFICIENT, and SIMPLE different approaches are. And for the first time users get a sense of how SATISFYING a solution is to use.

Adoption & Diffusion grows to include TRIALABILITY. For instance, are a lot of approvals needed for a device to be used. RELATIVE ADVANTAGE, the most important attribute in adoption and diffusion, crystalizes given real solutions to compare to existing methods.

Impact & Value now includes USAGE as piloting begins, which means including usage analytics in the design – an absolute must. Whichever direction usage trends, analytics empower you to know by how much and which questions to ask of users.

HCD: Deploy

HCD is iterative by design, because practically no innovation gets things right on the first try. That's especially true in DEPLOY. Development often happens at least three times before Go Live: Proof-of-Concept to prove one-time feasibility, Pilot to prove and discover needs for broader viability, and Beta toward discovery and dev for full enterprise scalability.



In DEPLOY, the full framework is fleshed out. And the focus shifts to responsive bug fixes and value harvesting, both in terms of quantitative value via integrated analytics, and qualitative user stories and quotes. Innovators and leaders need both.

Pleasant UX by now should be known. Sources of friction that remain deserve prompt attention with gratitude expressed publicly and sincerely for folks who brought problems or further ideas forward. UX is the whole experience of an innovation, and recognition is part of that experience.

Adoption & Diffusion becomes a focus with analytics quantifying both usage and impacts to processes or other user experiences. Though OBSERVABILITY is as perceived by users, and high OBSERVABILITY paired with strong outcomes in the other four adoption attributes fuels viral organic diffusion.

Impact & Value is another priority during DEPLOY. Leaders understand that big impacts grow from small efforts, but before they promise the funds to go big, they need to know that this former seed of an idea is working for users and adding value as a seedling (pilot) and then as a sapling (beta). If it was your money (and it is), you'd have the same need to know.